

Tsuguo HONGO*: Studies on the Agaricales of Japan (1)

The genus *Hygrophorus* in Shiga-Prefecture (2)

本郷次雄*: 日本産マツタケ目菌類の研究 (1)

滋賀県産アカヤマタケ属 (2)

15). *Hygrophorus cruentus* Hongo sp. nov.A *H. coccineo* differt carpophoris gracillimis, sporis minoribus, $6-7.5 \times 2.5-3.5 \mu$.

Pileus 10-23 mm broad, convex to hemispheric, or nearly plane, surface glabrous, not viscid, hygrophanous, deep blood red with a narrow yellow line round the margin, fading to orange over all, margin more or less translucent striate. Context thin and fragile, soft, orange except for a thin red pellicle, odor and taste not distinctive. Lamellae decurrent, arcuate, distant ($L=16-22$; $l=3-7$), broad (2-5 mm), rather thick, often more or less intervenose, orange, edges even. Stipe 3-5 cm long, 1.5-3 mm thick, glabrous, not viscid, often flexuose, equal or attenuated at the base, yellowish red to orange (the apex often concolorous with the pileus), stuffed or hollow, the base covered with white tomentum. Spores subcylindric, smooth, sometimes constricted at middle, nonamyloid, $6-7.5 \times 2.5-3.5 \mu$; basidia usually 4-spored, $25-32 \times 6-6.5 \mu$; cheilo- and pleurocystidia none; gill-trama of subparallel hyphae, $9-17.5 \mu$ diam.; pileus-trama homogeneous, pellicle not gelatinous.

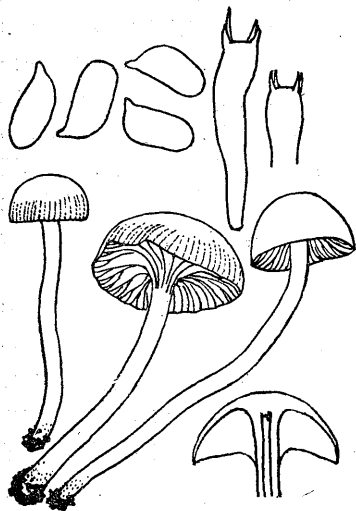


Fig. 3. *Hygrophorus cruentus*. (spores $\times 1500$; basidia $\times 900$).

Habit and Habitat: Gregarious to subcespitose on the ground in bamboo forests or in pine woods, Chausuyama, Ōtsu-city, May 14, 1952—Ishiyama-Hiratsu-chō, Ōtsu-city, May, 15, 1957 (type). Distr. Endemic (Shiga).

This species appears to be quite close to *H. coccineus*, but is readily distinguished by the smaller spores as well as by the slender stature. *H. imazekii* Hongo is also close but is characterized by more or less conic cap

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and larger spores. However, they are so closely related to each other, that it may be desirable to group *H. coccineus*, *H. cruentus* and *H. imazekii* together in a stirps of *Hygrocybe*.

16) ***H. pantoleucus*** Hongo sp. nov.

Pileo 1–4 cm lato, convexo, dein expanso, plano vel subumbonato, viscido, glabro, aquose albo, hygrophano, albo in siccis, disco saepe leviter flavescente, margine leviter pellucido-striato in humidis, estriato in siccis; carne alba, subteui, fragili, odore saporeque nullo; lamellis albidis, adnexis vel adnato-subdecurrentibus, subdistantibus ($L=26-45$; $l=(1)3(5)$), subventricosis, 1–5 mm latis, intervenosis; stipite 2.5–6 cm longo, 2–6 mm crasso, aequali, interdum compresso, albo, e farcto cavo.

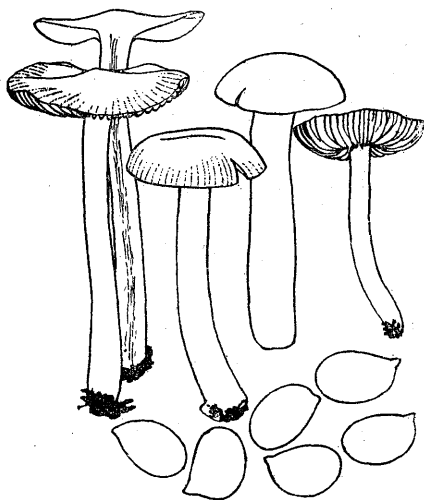


Fig. 4. *Hygrophorus pantoleucus*. (spores $\times 1500$).

and Nov. 9, 1957. Distr. Endemic (Shiga).

This species is closely allied to *H. huronensis* Smith et Hesler, but it differs in the very fragile flesh and somewhat smaller spores. Not uncommon.

17) ***H. flavescens*** (Kauffm.) Smith et Hesler in *Lloydia*, 5: 60 (1942)—Hongo in *Mem. Facul. Lib. Arts and Educ. Shiga Univ.* 1: 94 (1952)—Imazeki et Hongo, *Col. Ill. Fung. Jap.* pl. 2, fig. 12 (1957).

Spores ellipsoid, smooth, $7-9 \times 4-5 \mu$; basidia 4- (rarely 2-) spored, $30-37 \times 6.5-9 \mu$; cheilo- and pleurocystidia none.

Habit and habitat: Gregarious in frondose and coniferous woods, in grassy spaces,

Microscopic characters: Spores ellipsoid to ovoid, smooth, $6.5-8 \times 4-5.5 \mu$ or $6-7 \times 3.5-4 \mu$, nonamyloid; basidia 4-spored, $35-41 \times 6.5-7.5 \mu$; cheilo- and pleurocystidia not differentiated; gill-trama of nearly parallel hyphae ($4-13 \mu$ thick); pileus-trama homogeneous beneath a thick gelatinous pellicle.

Habit and habitat: Gregarious to subcespitose on the ground in bamboo forests, or in both frondose and coniferous forests, Mii-dera, Ōtsu-city, Nov. 12, 1951 — Kami-Beppo-chō, Ōtsu-city, Nov. 17, 1952—Ishiyama-Hiratsu-chō, Ōtsu-city, Oct. 31 (type)

sometimes in bamboo forests, Kami-Beppo-chō, Ōtsu-city, Oct. 18, 1949—Mii-dera, Ōtsu-city, June 5, 1950; Oct. 17, 1950; Oct. 21 and 25, 1954—Ishiyama-Hiratsuchō, Ōtsu-city, Oct. 8, 1955; Oct. 19, 1956.

Distr. Japan, North America.

Common. This species has often been confused with *H. chlorophanus* Fr. which has a viscid stem.

18) **H. puniceus** (Fr.) Fr. Epicr. 331 (1838).

Spores ellipsoid to narrowly ellipsoid, smooth, $8.5-11 \times 4-6\mu$ or $10-12 \times 4.5-6.5\mu$; basidia 4-spored, $37-44 \times 8-11\mu$; cheilo- and pleurocystidia absent.

Habit and habitat: Scattered to gregarious in mossy or grassy spaces, especially in woods, Hiyoshi-Shrine, Ōtsu-city, Oct. 21, 1955.

Distr. Japan, Europe, North America.

This species has much the stature of large specimens of *H. coccineus*, but can best be distinguished by the coarsely fibrillose-striate stem. Edible, but less common than *H. coccineus*.

19) **H. marchii** Bres. Iconogr. Myc. 7: pl. 343 (1928)—Hongo in Journ. Jap. Bot. 26: 141 (1951).

Spores ellipsoid, smooth, $7.5-10 \times 4-6\mu$; basidia 2- (or 4-) spored, $28-44 \times 6.5-7.5\mu$; cheilo- and pleurocystidia none.

Habit and habitat: Gregarious on the ground in mixed woods, Mii-dera, Ōtsu-city, June 5 and Nov. 7, 1950; May 26 and 30, 1952—Ishiyama-dera, Ōtsu-city, June 22, 1953. Distr. Japan (Shiga), Europe, North America.

In stature this species is quite similar to *H. flavescens*, but differs in its brilliant scarlet color.

Subsectr 2. Conici

20) **H. conicus** (Fr.) Fr. Epicr. 331 (1838).

Spores subellipsoid or ovoid (often irregular in shape), smooth, $10-14.5 \times 5-7.5\mu$ or $9.5-11 \times 7-9.5\mu$; basidia 2- (sometimes 4-) spored, $35-48 \times 9-11\mu$.

Habit and habitat: Solitary or gregarious, on the ground among grass (at road-borders, outskirts of woods, etc.), Seta-chō, Oct. 22, 1950; Oct. 24, 1952—Ishiyama-Terabe-chō, Ōtsu-city, Oct. 22, 1955.

Distr. Japan, Asia Minor, Europe, North America, Australia.

The writer's plant is almost intermediate between *H. conicus* and *H. nigrescens* Quél.; the two are probably not specifically distinct but only extreme forms of the same species.

21) **H. amoenus** (Lasch) Quél. Champ. Jura et Vosges, 1: 192 (1872).

H. calyptraeformis Berkeley, Outl. 202 (1860).

Spores broadly ellipsoid, smooth, $6.5-7.5 \times 4-5\mu$, 1-guttulate; basidia 4-spored, $26 \times 7\mu$; cheilo- and pleurocystidia scattered, $85-90 \times 18-23\mu$, clavate, cylindric, or fusoid-ventricose, hyaline, thin-walled.

Habit and habitat: Scattered in grassy places, in woods, also in bamboo forests, Seta-chō, Oct. 16, 1949—Ishiyama-dera, Ōtsu-city, July 12, 1955. Distr. Japan, Europe, North America.

Rare. This is one of the most beautiful and distinct Hygraphori, characterized by the acutely conic cap, the rosy or pinkish color, and the large cystidia.

Subsect. 3. Psittacini

22) **H. psittacinus** (Fr.) Fr. Epicr. 332 (1838).

Spores ellipsoid to subcylindric, smooth, $7.5-10.5 \times 3.5-4\mu$; basidia 4-spored, $33-44 \times 6.5-7.5\mu$.

Habit and habitat: Gregarious or scattered, on the ground in coniferous woods or in pastures, Kami-Beppo-chō, Ōtsu-city, July 10, 1954—Ishiyama-Terabe-chō, Ōtsu-city, June 13, 1955.

Distr. Japan, Europe, North America.

The cap and stem green and very glutinous at first, becoming yellow or orange as the parrot-green gluten disappears, except the apex of the stem, which remains green.

23) **H. laetus** (Fr.) Fr. Epicr. 329 (1838)—Hongo in Journ. Jap. Bot. 26: 23 and 146 (1951).

Spores ellipsoid to ovoid, smooth, $6.5-8 \times 4-4.5\mu$; basidia 4-spored, $22-35 \times 5.5-6.5\mu$; cheilocystidia abundant, forming a sterile border on the edge of gills, filamentous, $26-40 \times 1.5-3.5\mu$; pleurocystidia none.

Habit and habitat: Gregarious or solitary in grassy places, in *Sphagnum* bogs, or on damp soil in woods, Mii-dera, Ōtsu-city, Nov. 7, 1950—Chausu-yama, Ōtsu-city, Dec. 3, 1951—Ishiyama-Hiratsu-chō, Ōtsu-city, Nov. 5, 1954; May 4, 1955; Oct. 7 and 24, 1955; May 24, 1956.

Disty. Japan (Shiga, Niigata), Europe, North America.

This species is very variable in color, but is well characterized by the slimy viscid stem and the sterile gill-edge formed of slender filamentous cheilocystidia. Common.

24) **H. minutulus** Peck in Bull. N. Y. St. Mus. 1²: 9 (1888)—Hongo in Acta Phytotax. Geobot. 14: 72 (1951)—Imazeki et Hongo, Col. Ill. Fung. Jap. pl. 3, fig. 21

(1957).

Spores subcylindric to ellipsoid, smooth, $7.5-10 \times 3.5-4.5\mu$; basidia 4-spored, $30-37 \times 6.5-7.5\mu$; cheilo- and pleurocystidia none.

Habit and habitat: Gregarious or solitary on humus or amongst moss in woods, Mii-dera, Ōtsu-city, Sept. 14, 1950—Ishiyama-dera, Ōtsu-city, June 22, 1953. Distr. Japan (Shiga), North America.

A very small, uncommon fungus. This species is very closely related to *H. sciophanus* Fr. but differs in the more smaller size as well as in the brighter colors. *H. reai* R. Maire is also close, but is said to have a very bitter taste. *H. reai* var. *insipidus* (Lange), however, is hardly distinguishable from this American species, if the former actually has a viscid stem.

25) ***H. sciophanus* form. minor** Hongo f. nov.

A typo differt statura minori (pileo 5–12mm).

Pileus 5–12mm broad, obtusely conico-convex, then expanded, often more or less umbonate, surface glabrous, very viscid, hygrophanous, dull red (near “Dragon’s blood-red”) to dull red orange, fading to pinkish or yellowish but often retaining the

red color in the center, translucent striate when moist. Context thin, fragile, subconcolorous, taste and odor none. Lamellae adnate or slightly decurrent, distant or subdistant ($L=12-18$; $l=1-3$), salmon color, edges even. Stipe 1–3 cm long, 1–3 mm thick, fragile, equal, often flexuose, glabrous, slimy viscid, concolorous with the pileus above, yellowish orange below, becoming paler when old. Spores ellipsoid, smooth, nonamyloid, $6-8 \times 3.5-4.5(5.5)\mu$; basidia 4-spored, $31-41 \times 6-7.5\mu$; cheilo- and pleurocystidia not differentiated.

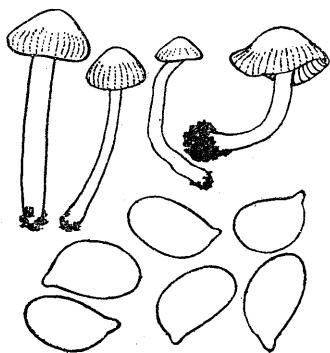


Fig. 5. *Hygrophorus sciophanus* f. *minor*. (spores $\times 1500$).

Habit and habitat: Gregarious amongst moss in mixed woods, Chausuyama, Ōtsu-city, Dec. 3, 1951 (type)—Mii-dera, Ōtsu-city, Dec. 6, 1951; Nov. 22, 1952. Distr. Endemic (Shiga).

Not uncommon, late in the season. Somewhat smaller than the main form. From *H. minutulus* with which it may easily be confused, it differs in the dull red color.

Key to species of Subgenus *Hygrocybe* in Shiga-Prefecture

- A) Pileus dark fuscous (TRISTES)*H. ovinus* (6)
- B) Pileus bright colored or white (LAETI).
- 1) Pileus distinctly conic or with a prominent cenic umbo (Conici).
- a) Pileus scarlet orange or yellow. Fruiting body blackening...*H. conicus* (20)
- b) Pileus rosy or pinkish. Fruiting body not blackening*H. amoenus* (21)
- 2) Pileus depressed, plane, convex, obtuse or obtusely conic, if umbonate the umbo obtuse.
- a) Stipe viscid (Psittacini).
- i) Pileus parrot-green, soon yellow or orange, stipe usually remaining greenish near the apex.....*H. psittacinus* (22)
- ii) Colors not as above.
- α) Colors mixed and variable, fulvous, pinkish, yellowish, olivaceous or grayish violaceous. Edge of gills sterile*H. laetus* (23)
- β) Colors not as above. Edge of gills fertile.
- * Pileus brilliant red to brilliant orange*H. minutulus* (24)
- ** Pileus dull red to dull red orange*H. sciophanus* f. *minor* (25)
- b) Stipe moist or dry, but not viscid (Coccinei).
- i) Pileus viscid (when moist).
- α) Pileus white*H. pantoleucus* (16)
- β) Pileus yellow*H. flavescens* (17)
- γ) Pileus red.
- * Stipe coarsely fibrilloso-striate.....*H. puniceus* (18)
- ** Stipe not striate*H. marchii* (19)
- ii) Pileus moist or dry, but not viscid.
- α) Pileus squamulose or becoming so when faded or in age.
- * Sphagnicolous.
- △ Pileus scarlet to orange vermillion.
- + Lamellae orange yellow, deeply decurrent. Spores $9-11 \times 6-7\mu$...
.....*H. cantharellus* f. *sphagnicola* (8)
- ++ Lamellae whitish or yellowish, adnate, then decurrent. Spores
 $10-14 \times 6-8.5\mu$*H. turundus* f. *sphagnophilus* (9b)
- △△ Pileus orange to yellow. Spores $10-15 \times 6-7.5\mu$ or $12-16.5 \times 6-7.5\mu$
.....*H. turundus* f. *macrosporus* (9c)
- ** Not sphagnicolous.

- △ Pileus dark red brown with a vinaceous tinge*H. dichrous* (11)
- △△ Pileus red to orange.
- + Stem thick (3-6mm). Spores $11-19 \times 7.5-10\mu$*H. pseudo-occineus* (10)
- ++ Stem slender (1-2.5mm). Spores $8-11.5 \times 4.5-7\mu$ (rarely $14.5 \times 7.5\mu$).
- × Pileus set with fuscous squamules...*H. turundus* f. *turundus* (9a)
- ×× Squamules scarcely fuscous.
- Lamellae adnate with a decurrent denticle ...*H. miniatus* (7)
- Lamellae distinctly decurrent.*H. turundus* f. *minus* (9d)
- β) Pileus remaining glabrous when faded.
- * Sphagnicolous. Pileus yellow orange to orange yellow.....*H. stagninus* (12)
- ** Not sphagnicolous.
- △ Pileus orange. Spores nearly globose, $(3.5)4-6(7) \times (3.5)4-5\mu$ *H. aurantius* (13)
- △△ Pileus red. Spores not globose.
- + Spores $7.5-10.5 \times 4-5\mu$*H. coccineus* (14)
- ++ Spores $6-7.5 \times 2.5-3\mu$*H. cruentus* (15)

Literature

- Dennis, R. W. G., Some West Indian collections referred to *Hygrophorus* Fr.—Kew Bull. **1953**, 253-268 (1953).
- Imai, S., Studies on the Agaricaceae of Hokkaido—Journ. Fac. Agr. Hokkaido. Imp. Univ. **43**: 1-378 (1938).
- Imazeki, R. and T. Hongo, Coloured Illustrations of fungi of Japan (1957).
- Ito, S. and S. Imai, Fungi of the Bonin Islands, III—Trans. Sappora Nat. Hist. Soc. **16**: 9-20 (1939).
- Konrad, P. and A. Maublanc, Icones selectae fungorum, **1-6** (1924-1937).
- and ———, Les Agaricales, **2** (1952).
- Kühner, R. and H. Romagnesi, Flore Analytique des champignons supérieurs (1953).
- Lange, J. E., Flora Agaricina Danica, **5** (1940).
- Singer, R., The Agaricales (Mushrooms) in modern taxonomy—Lilloa, **22**: 1-832 (1951)
- Smith, A. H. and L. R. Hesler, Studies in North American species of *Hygrophorus*, I—*Lloydia*, **2**: 1-62 (1939); *ibid.*, II—*Lloydia*, **5**: 1-94 (1942).
- and ———, Additional North American *Hygrophori*—*Sydowia*, **8**: 304-333 (1954).

摘 要

前報よりつづく。

15) **チシオヒメノカサ** (新種)。ベニヤマタケに類似するが、全体瘦せ形で胞子は小さい。5 月頃竹林またはアカマツ林内に発生する。大津市茶臼山及び同市石山平津町で採つた。

16) **シロヒガサ** (新種)。全体透明な白色であるが、乾けば雪白色となる (傘の中心部は多少黄味をおびることがある)。形態は次のアキヤマタケとほぼ同様。晩秋季、タケやぶ又は森林内に生ずる。大津市内各地で採る。

17) **アキヤマタケ**。 18) **ヒイロガサ**。 19) **ミイノベニヤマタケ**。

ii アカヤマタケ亜節

20) **アカヤマタケ**。欧州では *Hygrophorus nigrescens* Quél. が *H. conicus* (Fr.) Fr. とは別種またはその変種とみなされているが、筆者の標本では両者の中間の特徴をそなえている。これら両者は恐らく同一種内の両極端型にすぎないであろうと考える。

21) **アケボノタケ**。

iii ワカクサタケ亜節

22) **ワカクサタケ**。 23) **ナナイロヌメリタケ**。 25) **ヌメリアカヌマベニタケ**。

25) **ヒメアカヌメリタケ** (新品種)。アカヌメリタケ *H. sciophanus* (Fr.) Fr. (本邦未発見) の小形品種。大津市茶臼山及び三井寺境内の森林で採る。晩秋から冬にかけて発生する。

◇石川光春著：**花から実を結ぶまで** 改訂版 同和春秋社 昭和 32 年 8 月 30 日 発行 定価 350 円

今でこそ植物に関する啓蒙書や随筆は春夏の花粉の如くチマタに溢れて居るが 20～30 年前にはデンチョウゲの果実のように真に寥々たるものであつた。そのころから「へへのもへじ」、趣味の植物春秋、花、雑草などの著書で私共にビタミン剤やカロリーを補給して下さった著者が近頃“花”の戦後版とも云うべき本書を出された。記述されていることは庶民的であり、著者は自身の観察の記録が軽妙な筆に載つて絵となり、文に綴られている。画は昔ながらの和風ガクブチ入り中にはルオーの画の如くフチからはみ出して居り、真に俳味に溢れている。少年のためのものだが、我々にもトランキライザーの役を果たす。装訂は少々野暮。マツの受粉の項に「マツやスギに限らず一般に裸子植物は被子植物に比べると悠長でゆつたりしたものです。多分にせせこましくなかつた昔の姿を備えているものと見てよろしい。ちょうどこの頃のように洋装の人が次第に多くなりましたが、その間にゆつたりした和服の連中が混つていると思えばよろしいでしょう」とある。先生の風格と本書のおもむきも亦斯くの如し。実は私が先生の洋装に接したのは丁度今から 30 年前の 2 月 1 日に只 1 回限りであつた。(小林義雄)